



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/091,680      | 03/05/2002  | Jiang Hsieh          | 120335              | 7220             |

7590 02/03/2009  
John S. Beulick  
Armstrong Teasdale LLP  
Suite 2600  
One Metropolitan Square  
St. Louis, MO 63102-2740

|          |
|----------|
| EXAMINER |
|----------|

LAURITZEN, AMANDA L

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

3737

|           |               |
|-----------|---------------|
| MAIL DATE | DELIVERY MODE |
|-----------|---------------|

02/03/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |  |                                     |  |
|------------------------------|--|-------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/091,680   | <b>Applicant(s)</b><br>HSIEH, JIANG |  |
|                              | <b>Examiner</b><br>Amanda L. Lauritzen | <b>Art Unit</b><br>3737             |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4,7-12,16-21 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-12,16-21 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Response to Arguments***

Applicant's arguments with respect to claims 4, 7-12, 16, 19-21 and 25 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments with respect to rejection of claims 4, 7-12, 16 and 19-21 under 35 U.S.C. 101 for nonstatutory subject matter have been fully considered but they are not persuasive.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 4, 5, 7-12, 16, 17 and 19-21 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In order for a process claim to be patentable under 35 U.S.C. 101, it must be tied to another statutory class (such as a particular apparatus), or transform underlying subject matter (such as an article or materials) to a different state or thing. The claim(s) must positively recite the thing or product to which the process is tied, for example by identifying the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, for example by identifying the material that is being changed to a different state. Additionally, the claimed method and computer program are interpreted as calculations executed on stored data and are not cited in conjunction with an identifiable apparatus.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4, 5, 7-12, 16, 17, 19-21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsieh et al. (US 5,473,656) in view of Hsieh (US 5,301,108).

Hsieh et al. '656 disclose a CT imaging system and computerized data processing system configured to estimate a gradient for a high-density object using a plurality of reconstructed images separated by a spacing, with each gradient value being a function of the value of each reconstructed image (col. 2, line 53 – col. 3, line 23, with a correction dependent upon z-axis position). A gradient image is generated using an estimated gradient, with the gradient image representing the variation in the z-direction of the high-density object (col. 5, lines 29-53). An error-candidate projection is generated along a projection view angle using the gradient image (col. 4, line 63 – col. 5, line 1; also col. 9, lines 16-20). Hsieh et al. '656 do not expressly disclose scaling or weighting of the error-candidate projection; however, Hsieh '108 teaches calculation of error signature vectors according to the non-uniform response along the z-axis and details assigning a weighting factor and a scaling value (Figs. 9, 10; also col. 4, lines 4-7; col. 7, line 51 – col. 8, line 20; also col. 9, line 52 – col. 10, line 12, for calculation according to the central angle). It would have been obvious to one of ordinary skill in the art at the time of invention to include a scaling or weighting of the error-candidate projection in order to guard against over correction, as taught in Hsieh '108, with the system and method of Hsieh et al. '656.

Art Unit: 3737

While the equations taught in both Hsieh et al. '656 and Hsieh '108 are not identical to those claimed, the net result is the same in that error-candidate projection(s) are obtained based on the gradient image of the variation in the z-direction of a high-density object. The error-candidate projection(s) are based upon the same parameters, including the view angle, z-axis position, and number of rows of channels in the detector array.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda L. Lauritzen whose telephone number is (571)272-4303. The examiner can normally be reached on Monday - Friday, 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3737

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Amanda L. Lauritzen/  
Examiner, Art Unit 3737

/BRIAN CASLER/  
Supervisory Patent Examiner, Art Unit  
3737